Session 1: Quickstart with Python

Your Turn:

Question: Can you think of the longest word you can type using the QWERTY keyboard? How will you print that word using the print statement?

Answer: print("TYPEWRITER")

A. Multiple Choice Questions (MCQs - Tick ✓ the correct answer)

1. Which of the following will correctly print "Hello!" on the screen?

a) print (Hello!)

b) print("Hello!")

c) print Hello!

d) print("Hello)

Answer: b) print("Hello!")

2. What symbol do you use to write comments in Python?

a) *

b) #

c) //

d) /*

Answer: b) #

3. An algorithm is:

a) A fancy way of describing complex computer code.

b) A step-by-step set of instructions to solve a problem.

c) A specific data type used in Python.

d) A keyword used to display messages on the screen.

Answer: b) A step-by-step set of instructions to solve a problem.

4. A flowchart uses:

a) Text descriptions only to explain the logic.

b) Shapes and arrows to visually represent the steps.

c) Code snippets to show the actual Python implementation.

d) Numbers and mathematical equations to define the logic.

Answer: b) Shapes and arrows to visually represent the steps.

5. What does the print() function do in Python?

a) Reads input from the user

b) Displays output to the console

c) Performs mathematical calculations

d) Imports external modules

Answer: b) Displays output to the console

B. Match the following:

1. Algorithm	a) Message clarity
2. Flowchart	b) Coding environment
3. print keyword	c) Visual representation
4. Python IDE	d) Instructions
5. Comments	e) Display message on console

Answers:

1. d) Instructions

2. c) Visual representation

3. e) Display message on console

4. b) Coding environment

5. a) Message clarity

Session 3: Data Detectives

A. Write the answers to the following questions in your notebook.

1. What is a variable in Python?

Answer: A variable is a named storage location for data that can hold values that can be changed during program execution.

2. List three common data types in Python and provide an example for each.

Answer:

- Integer (e.g., 5)
- Float (e.g., 3.14)
- String (e.g., "Hello")

3. How do you concatenate two strings in Python?

Answer: You can concatenate two strings using the + operator. Example: print("Hello " + "World!")

4. What does the len() function do in Python?

Answer: The len() function returns the number of items in an object, such as the number of characters in a string.

B. Multiple Choice Questions (MCQs)

1. What is a variable in Python?

a) A reserved keyword

b) A named storage location for data

c) A mathematical operator

d) A loop construct

Answer: b) A named storage location for data

2. Which of the following data types is used to store whole numbers?

a) Integer

b) Float

c) String

d) Boolean

Answer: a) Integer

3.What is the appropriate data type to represent the price of an apple, which can be ₹ 0.75?

a) Integer

b) Float

c) String

d) Boolean

Answer: b) Float

4. How can you store the name “Nick” in a Python program?

a) name = Nick

b) name = "Nick"

c) name Nick

d) String name = "Nick"

Answer: b) name = "Nick"

5. Which of the following operators is used to concatenate (join) strings in Python?

a) *

b) /

c) +

d) –

Answer: c) +

Session 5: Make Your Decision

A. Multiple Choice Questions (MCQs - Tick ✓ the correct answer)

1. Which operator is used to add two numbers?

a) +

b) -

c) *

d) /

Answer: a) +

2. What operator should be placed in the blank space to make the code snippet valid?

a) Equal to (==)

b) Greater than (>)

c) Less than (<)

d) Not equal to (!=)

Answer: a) Equal to (==)

3. Which statement is used for decision-making in Python?

a) for

b) switch

c) if

d) loop

Answer: c) if

B. State True or False

1. In Python, the = operator is used for comparison.

Answer: False

2. The if-else statement allows for the execution of multiple code blocks based on different conditions.

Answer: True

3. Relational operators in Python include and, or, and not.

Answer: False

C. Match the following:

1. Arithmetic Operators	a) and, or, not
2. Logical Operators	b) >, <, ==, !=

3. Conditional Statements	c) +,-,*,/
4. Relational Operators	d) if, else, elif

Answers:

1. c) +,-,*,/

2. a) and, or, not

3. d) if, else, elif

4. b) >, <, ==, !=

Session 7: Loop it Up

I. Multiple Choice Questions (MCQs)

1. Which of the following loops in Python is more suitable when the number of iterations is known?

a) for loop

b) while loop

c) Both are equally suitable

d) None of the above

Answer: a) for loop

2. What is the purpose of the range() function in Python?

a) To generate a sequence of numbers

b) To create a list of elements

c) To calculate the length of an iterable

d) None of the above

Answer: a) To generate a sequence of numbers

3. In a for loop, which keyword is used to iterate over elements of a sequence?

a) next

b) iterate

c) for

d) in

Answer: d) in

B. State True or False

1. A while loop in Python always executes at least once.

Answer: False

2. A for loop always requires an initialization statement for a loop variable.

Answer: False

3. The range function in Python can be used to generate sequences of floating-point numbers.

Answer: False

C. Match the following

Answer: 01, 04 – For loop, 02, 03, While loop

D. Think and Answer

1. Describe a real-world scenario where you might use a while loop in Python.

Answer: Imagine you're practicing basketball, and you want to keep shooting hoops until you make 10 baskets. You don’t know how many times you’ll have to shoot to reach

10, so you can use a while loop in Python to keep shooting until you make the required baskets. The loop keeps going as long as you haven't made 10 baskets.

2. Imagine you're designing a game where the player needs to guess a secret number between 1 and 100. How might you use a while loop in Python to repeatedly prompt the player for guesses until they correctly guess the secret number?

Answer: In the game, you could use a while loop to keep asking the player to guess the secret number. The loop will keep running until the player guesses the number correctly. Every time they guess wrong, the loop will tell them if they need to guess higher or lower, and then ask again. Once they guess right, the loop will stop, and the game will congratulate them!

Session 9: Reuse Your Code

A. Multiple Choice Questions (MCQs)

1. Which of the following will correctly print "Hello!" on the screen?

   a) def

   b) func

   c) define

   d) function

Answer: d) function

2. What is the purpose of a function in Python?

   a) To perform a specific task

   b) To create graphical user interfaces (GUIs)

   c) To organize data in lists

   d) To print messages on the screen

Answer: a) To perform a specific task

3. What happens when you call a function?

   a) It creates a new variable.

   b) It executes the code inside the function.

   c) It deletes the function.

   d) It performs mathematical calculations

Answer: b) It executes the code inside the function

B. State True or False

1. User-defined functions must always have arguments.

Answer: False

2. It's good practice to give your functions clear and descriptive names.

Answer: True

3. Functions help make code more readable and organized.

Answer: True

Session 11: Pixel Play with Python

A. Multiple Choice Questions (MCQs)

1. What kind of display uses organic materials that light up when an electric current passes through them?

a) OLED display

b) LCD display

c) LED display

d) Plasma display

Answer: a) OLED display

2. How many data points define the resolution of the WizIoT OLED display mentioned in the session?

a) 1024 × 768

b) 320 × 240

c) 128 × 64

d) 800 × 600

Answer: c) 128 × 64

3. Which HTTP method is used to send instructions (data) to a server in this session's context?

a) GET

b) POST

c) PUT

d) DELETE

Answer: b) POST

4. What library helps you work with JSON data format in Python (mentioned in the session)?

a) requests

b) json

Answer: b) json

5. Which of the following is NOT a step mentioned in the session's guide for interacting with the OLED display using Python?

a) Importing libraries like requests and json

b) Defining the API URL, headers, and message

c) Sending API requests using requests.request() method

d) Downloading and installing additional software

Answer: d) Downloading and installing additional software

B. Match the following:

1. GET	a) Sends data to the server
2. POST	b) Flexibility
3. JSON format	c) Sending HTTP requests and processing responses
4. Request library	d) Retrieves data from a server
5. OLED	e) Transmitting data between servers and web applications

Answers:

1. d) Retrieves data from a server

2. a) Sends data to the server

3. e) Transmitting data between servers and web applications

4. c) Sending HTTP requests and processing responses

5. b) Flexibility

Session 13: Drawing Shapes on OLED

I. Multiple Choice Questions (MCQs)

1. What parameter is used to specify the position of a shape along the horizontal axis on an OLED screen?

a) Radius

b) X-axis

c) Y-axis

d) Length

Answer: b) X-axis

2. Which operation is used to draw individual points on an OLED screen?

a) Drawing circles

b) Drawing rectangles

c) Drawing lines

d) Drawing pixels

Answer: d) Drawing pixels

3. What is the purpose of the reset payload in the program?

a) Drawing a circle

b) Resetting the OLED display

c) Drawing a rectangle

d) Drawing a line

Answer: b) Resetting the OLED display

4. What is the purpose of the accessKey and secretKey variables in the program?

a) They define the position of shapes on the OLED display.

b) They authenticate the program to access the WizIoT API.

c) They store the coordinates for drawing shapes.

d) They determine the color of shapes on the OLED display.

Answer: b) They authenticate the program to access the WizIoT API.

5. What data format is used to encode the payloads before sending them to the WizIoT API?

a) XML

b) CSV

c) JSON

d) HTML

Answer: c) JSON

B. State True or False:

1. OLED technology allows for displays to be made flexible, enabling curved or even foldable screens.

Answer: True

2. The radius parameter is used to specify the width of a rectangle when displaying it on an OLED screen.

Answer: False

3. The accessKey and secretKey variables in the program are used for drawing shapes on the OLED display.

Answer: False

Session 15: The Power of Randint()

A. What is the name of the Python function used to generate random integers within a specified range?

Answer: randint()

B. Explain, in your own words, what the randint() function does.

Answer: The randint() function generates a random integer between two specified numbers (inclusive of both).

C. Multiple Choice Questions (MCQs)

1. Which of the following statements is TRUE about the randint() function?

a) It generates random decimal numbers.

b) It always picks the same number.

c) It picks a random integer between two specified numbers (inclusive).

d) It requires an internet connection to work.

Answer: c) It picks a random integer between two specified numbers (inclusive).

2. Imagine you use random.randint(1, 5) in your code. What are some possible random numbers it could generate?

a) 0, 2, 4

b) 1.5, 3.7, 4.9

c) only 1 and 5

d) any integer between 1 and 5 (including 1 and 5)

Answer: d) any integer between 1 and 5 (including 1 and 5)

D. Match the Following:

1. random.choice([1, 2, 3])	a) A block of code designed to perform a specific task
2. randint(1, 6)	b) Selects a random element from a list
3. def my_function(x, y): return x + y	c) Generates a random integer between a given range

Answers:

1. b) Selects a random element from a list

2. c) Generates a random integer between a given range

3. a) A block of code designed to perform a specific task

Session 17: Weather Wizards

A. Multiple Choice Questions (MCQs)

1. Which of the following is NOT a component of a WizIoT Weather Station?

   a) NTC Thermistor

   b) Solar Panel

   c) DHT11 Sensor

   d) Capacitive Sensor

Answer: b) Solar Panel

2. The data retrieved from the WizIoT Weather Station is delivered in what format?

   a) Text

   b) JSON

   c) Image

   d) Audio

Answer: b) JSON

3. When using the requests library in Python to interact with the weather data API, what does the "POST" request method typically do?

   a) Retrieve data from the server

   b) Update data on the server

   c) Delete data from the server

   d) Establish a connection with the server

Answer: b) Update data on the server

4. What does the "heat index" value retrieved from the WizIoT Weather Station represent?

   a) Actual air temperature

   b) How hot it feels considering temperature and humidity

c) Humidity level

d) Light intensity

Answer: b) How hot it feels considering temperature and humidity

5. Which of the following is a security measure used by the weather data API to restrict unauthorized access?

a) Username and password

b) Access Key and Secret Key

c) Facial recognition

d) Captcha verification

Answer: b) Access Key and Secret Key

B. Match the Pair

1. DHT11 sensor	a) Temperature
2. NTC Thermistor	b) Humidity
3. Capacitive sensor	c) Temperature & Humidity

Answers:

1. c) Temperature & Humidity

2. a) Temperature

3. b) Humidity

C. Fill in the Blanks:

1. The two special components of the DHT11 sensor are the NTC temperature sensor/thermistor and the _____ sensor.

Answer: Humidity

2. WizIoT Weather Stations can be used for local weather stations, greenhouse _____, and research institutes studying weather patterns.

Answer: environments

D. State True/False:

1. The WizIoT Weather Station connects to the WizGear IoT Bridge using the CO1 pin on the sensor and the CO12 pin on the bridge.

Answer: False

2. The requests library in Python allows you to translate between Python code and the IoT device for sending and receiving weather data.

Answer: True

Session 19: Emoji-fy Your Python World

I. Multiple Choice Questions (MCQs)

1. What is the purpose of the \N{} syntax in Python when working with emojis?

a) To define a new variable

b) To import external libraries

c) To specify which emoji to display

d) To create a loop structure

Answer: c) To specify which emoji to display

2. What does the following Python code snippet do? print("\N{heart eyes}")

a) 😊

b) 😍

c) 😉

d) 😢

Answer: b) 😍

3. Which Python code represents this '😊' emoji?

a) print("\N{face with tears of joy}")

b) print("\N{grinning face with smiling eyes}")

c) print("\N{rolling on the floor laughing}")

d) Drawing a line

Answer: b) print("\N{grinning face with smiling eyes}")

4. What does the following emoji represent: 🌨?

a) Sunny weather

b) Cloudy weather

c) Rainy weather

d) Snowy weather

Answer: c) Rainy weather

5. What is the output of the following code?

```
for i in range(1,5):
    print("😊"*i)
```

a) 

b) 

c) 

d) 

Answer: a)

B. Match the Pair:

1. print("\N{robot face}")	a) 🤖
2. print("\N{clown face}")	b) 🤡
3. print("\N{unicorn face}")	c) 🦄

Answers:

1. c) 🦄

2. a) 🤡

3. b) 🤖

C. State True/False:

1. Emojis are a form of non-verbal communication.

Answer: True

2. Emojis are only used in text messages.

Answer: False

3. Emojis can help to make written communication more engaging and expressive.

Answer: True